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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,441	04/08/2004	Max Herla	HERLA	7169
20151	7590	08/25/2005	EXAMINER	
HENRY M FEIEREISEN, LLC			GATES, ERIC ANDREW	
350 FIFTH AVENUE			ART UNIT	
SUITE 4714			PAPER NUMBER	
NEW YORK, NY 10118			3722	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,441

Applicant(s)

HERLA, MAX

Examiner

Eric A. Gates

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-14 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/8/04, 9/13/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 103 16 244.5, filed on 9 April 2003.

Specification

2. The disclosure is objected to because of the following informalities:
 - a. In paragraph 0007, line 7, "tom" should be changed to "to".
 - b. In paragraph 0025, line 3, "tie rod 11" should be change to "tie rod 12".
 - c. In paragraph 00027, line 1-2, "rotary feed 27" should be changed to rotary feed 23".Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Date (U.S. Patent 6,264,409).

Art Unit: 3722

5. Per claim 1, Date discloses a spindle unit for a machine tool comprising a drive unit 11 having a drive shaft 29, a spindle head assembly 1 constructed for receiving a tool and having a hollow spindle head shaft 1 driven by the drive unit 11, a tie rod 23 arranged for axial displacement in the hollow spindle head shaft 1 and mechanically coupled with the drive shaft 29, and a shifting unit 33 for axially moving the drive shaft 29 together with the tie rod 23.

6. Per claim 2, Date discloses the spindle head assembly 1 and the drive unit 11 to be detachably connected, and the drive shaft 29 and the tie rod 23 are detachably coupled to one another.

7. Per claim 4, Date discloses the drive shaft 29 having a central bore 61 for transporting a material, said tie rod 23 having a tube extending into the central bore 61 and being removable therefrom.

8. Per claim 11, Date discloses the shifting unit 33 is constructed for operation using a hydraulic means.

9. Per claim 13, Date discloses a method for operating a spindle unit for a machine tool having a drive unit 11 with a drive shaft 29 and a spindle head assembly 1 for receiving a tool with a tie rod 23, comprising the steps of shifting the tie rod 23 in the axial direction to a first position with the help of the drive shaft 29, as shown in Figures 2D and 2E, and moving the drive shaft 29 backwards in the axial direction to a second position, thereby also enabling a backward movement by the tie rod 23, as described on page 7 of the specification for detachment of the tool holder T.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Kameyama (U.S. Patent 5,009,554). Date discloses the invention substantially as claimed, except Date does not disclose the spindle head shaft to be constructed as a spline shaft, or the drive shaft having an end face constructed as a hollow wheel to complement the spline end of the spindle head shaft to enable coupling. Kameyama teaches a spindle head shaft 6 that has one end facing the drive shaft 13b and constructed as a spline shaft 15, and said drive shaft 13b having an end face constructed as a hollow wheel 16 to complement the one end 15 of the spindle head shaft 6 to for the purpose of enabling coupling between the two parts. Therefore it would have been obvious to one having ordinary skill in the art to have combined the spindle unit of Date with the spindle head shaft and drive shafts of Kameyama in order to have an attachment between the two that is axially releasable without rotation.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Muller (U.S. Patent 3,806,272). Date discloses the invention substantially as claimed, except Date does not disclose the drive shaft and tie rod to be formed as one piece. Muller teaches a drive shaft 33 and tie rod 33 which are formed from one piece for the purpose of simplification of the spindle unit assembly. Therefore it would have

Art Unit: 3722

been obvious to one having ordinary skill in the art to have combined the spindle unit of Date with the drive shaft and tie rod combination of Muller to have provided a less expensive assembly.

13. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Holtey (U.S. Patent 5,322,494). Date discloses the invention substantially as claimed, except Date does not disclose the drive unit to have a rotor mounted on the drive shaft or a stator which completely surrounds the rotor independent of a displacement position of the shifting unit.

14. Per claim 7, Holtey teaches a drive unit including an electric motor 19 having a rotor 93 mounted on the drive shaft 59 for the purpose of providing support to the drive shaft. Therefore it would have been obvious to one having ordinary skill in the art to have combined the spindle unit of Date with the rotor of Holtey in order to provide the drive shaft more rotational stability.

15. Per claim 8, Holtey teaches the electric motor 19 to include a stator 99 that completely surrounds the rotor 93 independent of displacement position of the shifting unit for the purpose of providing protection to the rotor during operation. Therefore it would have been obvious to one having ordinary skill in the art to have combined the spindle unit of Date with the stator of Holtey in order to provide a more stable drive unit.

16. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Wahlstrom (U.S. Patent 2,995,069). Date discloses the invention substantially as claimed, except Date does not disclose an axially displaceable bearing assembly for support of the drive shaft. Wahlstrom teaches a drive shaft 89 with an axially

Art Unit: 3722

displaceable bearing assembly 52 for the purpose of providing moving support of the drive shaft. Therefore it would have been obvious to one having ordinary skill in the art to have combined the drive shaft of Date with the bearing assembly of Wahlstrom in order to provide support to the drive shaft during axial movement of the drive shaft.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Wahlstrom and further in view of Kameyama. The modified invention of Date discloses the invention substantially as claimed, except Date does not disclose the bearing assembly having bearing sleeves for support of opposite ends of the drive shaft. Kameyama teaches the drive shaft 13b having opposite ends with bearing assemblies 14a and 14b for the purpose of providing support to the opposite ends of the drive shaft. Therefore it would have been obvious to one having ordinary skill in the art to have combined the modified bearing assembly of Date with the bearings of Kameyama in order to provide axially displaceable bearings on both ends of the drive shaft.

18. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Date in view of Mitchell (U.S. Patent 4,583,894). Date discloses the invention substantially as claimed, except Date does not disclose a sensing device constructed for measuring an axial position of the drive shaft and thereby implementing an indirect measurement of an axial position of the tie rod. Per claims 12 and 14, Mitchell teaches a sensing device 208 constructed for measuring an axial position of the drive shaft 70 and thereby implementing an indirect measurement of an axial position of the tie rod 148 for the purpose of locking the drive shaft 70 and tie rod 148 during tool exchange. Therefore it would have been obvious to one having ordinary skill in the art to have

Art Unit: 3722

combined the spindle unit of Date with the sensing device of Mitchell in order to know the positions of the drive shaft and tie rod during operation of the spindle unit.

Allowable Subject Matter

19. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schwartz (U.S. Patent 2,343,875) and Sato (U.S. Patent 5,860,776) disclose machine tools with rotary spindle units.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:00-4:30 & alt Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

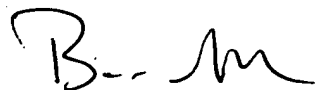
Art Unit: 3722

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EAG
15 August 2005

Eric A. Gates
Patent Examiner
Art Unit 3722



BOYER D. ASHLEY
PRIMARY EXAMINER